29 June 1964

MEMORANDUM FOR THE RECORD

SUBJECT: US-USSR Cooperation in Space Biology and Medicine

1. In principle the proposed agreement would be advantageous to both sides and represents a first step towards expanded cooperation in a mutually beneficial area. However, certain precautionary measures are indicated with regard to the initial stage of co-authored publication. Various critical problems also will arise in the second stage of cooperative research and development.

2. Co-authored Publication

As outlined in Section IV of the COSPAR agreement, a variety of critical problem areas are to be covered which are of concern to both sides. Several areas represent a paucity of available hard data due to inherently difficult experimental conditions, and others are concerned with subjects on which information is speculation or philosophical in character. On balance, the net return of new information to the United States probably will be small, if matched against the open literature now available. Volume I, Part I (Introduction) represents a coincidence of general thinking among investigators of all nations as revealed in previous international meetings. The one element of a timetable for planning and development of "work in Space Biology" is a secure matter in the USSR and probably will not be revealed under these circumstances. Volume I, Part II (Outer Space from a Physical and Biological Point of View) includes study areas wherein the United States clearly has greater strength than the USSR. This is particularly evident in Chapters 1-3. Chapters 4-6 are areas where hard information has fully demonstrated little if any Soviet capability. Revelation of this information would be a gift to the USSR with no chance of Soviet factual return and little control over whether the Soviets would use the procedures properly to ensure a planetary sterile preserve.

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Volume II, Part III (Medical and Biological Problems of Man's Flight into Space) represents a combination of secure Soviet information (Chapter 1, specific aspects of Chapters 2, 4, and 5), little data due to limited earth-bound experimental conditions (Chapter 3), and a current U.S. state-of-the-art and technological advantage (Chapter 6).

Volume III, Part IV (Systems for Protecting and Supporting Man in Space Flight) includes one area (Chapter 1) which would be advantageous to the United States should the Soviets choose to reveal details of their Vostok environmental control system (suit and capsule). Intelligence information now indicates that the manned Vostok program is in its final phase and that the major Soviet bioastronautics effort has been concentrated on prolonged (over 14 days) manned flight for about two years. Specific design and operating details of the Vostok life support system may well be outdated by the time these publications are published. In addition, a commitment has now been made by the Soviets to reveal and display the Vostok system to U.S. sources. The subjects of Chapters 2 and 3 represent a dilemma to both participants in that they are major requirements for prolonged flights and their development is at an early stage. The Soviet data in support of Chapter 4 already have been revealed in considerable depth via open literature.

3. Cooperative Research and Development

Our information continues to demonstrate that the Soviets are not interested in cooperation within areas where they have strong capabilities due to greater effort or unique space flight experience. They will not cooperate on development of environmental control systems for prolonged flight since they would have to reveal, among other things, the size of their proposed larger vehicle, how they achieve a tighter capsule than the United States has, what their basis for closed ecological systems is to be, etc. They will not offer to cooperate on the extremely critical factor of cardiovascular deconditioning since they would have to reveal their extensive and at times unique approach to care and

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monitoring of the cosmonaut for periods over 14 days, the accelerative and decelerative forces expected from new generation vehicles, specific design of artificial gravity systems now under development, etc. They will not cooperate on development of suiting without umbilical cord requirements since this is an unsolved problem for the Soviets and the United States, and any advances would reflect on Soviet capabilities to accomplish rendezvous and docking their [redacted] and manned lunar landing operations. 25X1D

Areas which they intend to offer for cooperative research and development include exobiology and sterilization of spacecraft, psychophysiology of space flight, study of vestibular problems of man in space flight, and problems of demineralization. The aforementioned are areas where Soviet knowledge and technology has faltered.

4. Conclusions and Recommendations

a. For the initial cooperative stage (publication) the Soviets must be closely monitored as to detail and quality of content equal to the U.S. effort. The recent emergence of key investigators and responsible authorities in space biomedicine should be used to certify that proper authorities rather than spokesmen or scientific-political personalities write and edit the separate Soviet contributions.

b. Revelation of U.S. know-how in a number of areas will be manifestly one-sided. This may be turned to advantage by making conditions for Soviet revelation of details in areas where they excel (e.g., environmental control systems).

c. Cooperative research and development should be curtailed to include a few areas where there are opportunities for trade-off. Present indications limit cooperative effort for the next two to three years to cardiovascular problems and new devices for physiological monitoring of space crews.

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d. All information exchanges should be made only after certification that the Soviet work, in fact, supplements available open sources of Soviet literature, such as the comprehensive Volumes I, II, and III of Problems of Space Biology.

[redacted] 25X1A

/ Deputy Chief
Life Sciences Division/SI

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25X1A

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1 JUL 1964

MEMORANDUM FOR: Deputy Director (Science & Technology)

ATTENTION: [redacted] 25X1A

SUBJECT: US-USSR Biomedical Space Agreement

As per your telecon request of 26 June 1964, attached please find the position support paper on the proposed US-USSR cooperative program in Space Biology and Medicine.

[redacted] 25X1A

Assistant Director
Scientific Intelligence

Attachment:
Memo for Record
by DC/LSD/SI
dated 6/29/64

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[redacted]
Deputy Chief
Life Sciences Division/SI

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Jul 16 4 10 PM '64

Blagonravov message to Dryden referred to in Deptel 96 reports not only exceptions to space biology section recent Memorandum of Understanding but may imply differences in other sections. No action possible in either area until letter received. Believe this brings Embassy up to date. If Blagonravov letter raises questions which ~~xxxx~~ cannot be resolved by correspondence, Dryden will probably propose further direct discussion with Blagonravov during October UN meeting New York. September meeting of authors, Warsaw impossible until basic agreement on project reached.

GP-3

END.

RUSK

Drafted by: NASA:EAnderson/SCI:CEDillery:hy 7/16/64

Clearances: EUR/SOV - Mr. Polansky

Telegraphic transmission and classification approved by: SCI - Robert F. Packard

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